Feb. 16, 1926. 1,572,937

W. H. KEMPTON

STRAIN INSULATOR

Filed August 10, 1918

Fig. 1

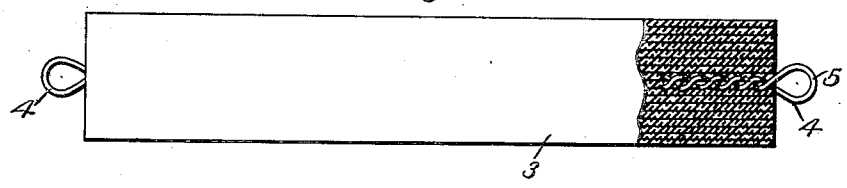


Fig. 2

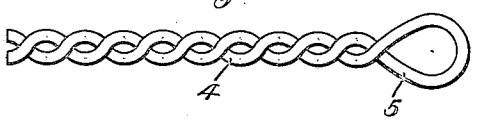
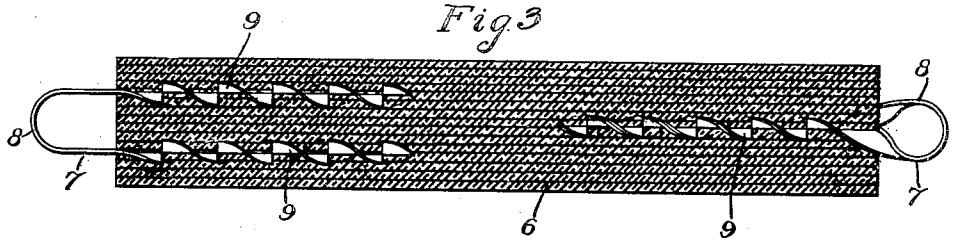


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLARD H. KEMPTON, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

STRAIN INSULATOR.

Application filed August 10, 1918. Serial No. 249,348.

To all whom it may concern:

Be it known that I, WILLARD H. KEMPTON, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Strain Insulators, of which the following is a specification.

My invention relates to strain insulators, and it has for its primary object the construction of a highly efficient and cheap insulator comprising superimposed layers of impregnated sheet material, and suitable connector elements.

One object of my invention is to provide an insulator in which high insulating qualities and great mechanical strength shall be combined.

Another object of my invention is to construct a strain insulator which shall be unaffected by wide temperature changes, moisture, oils, weak acids and alkalis.

A further object of my invention is to construct an insulator, comprising superimposed layers of impregnated sheet material, by a method which will insure a product so uniform that both the electrical and mechanical insulating qualities may be accurately determined.

A still further object of my invention is to provide a molded strain insulator in which the connector elements may be molded in place at the same time that the insulator is pressed and cured in a mold.

With these and other objects in view, my invention will be more fully described; illustrated in the drawings, in which corresponding numerals indicate like parts, and then more particularly pointed out in the appended claims.

In the drawings Fig. 1 is a side elevation, partly in section, of a strain insulator constructed in accordance with my invention; Fig. 2 is an elevational view of a connector element which may be employed in constructing my improved insulator, and Fig. 3 is a longitudinal sectional view of a modified form of insulator embodying my invention.

In practicing my invention, I may construct a strain insulator by employing an impregnated sheet material which may be wound about metallic connector elements disposed at the end of the material so that the material engages portions of the metallic members while other portions of the members project beyond it. The material may thus be wound about the connectors to form a rod and the rod may be disposed in a mold and subjected to heat and pressure to compact it and harden the binder.

The metallic members may consist of wire bent and twisted in such manner as to form a loop having extending and distorted end portions which will insure better binding action between the impregnated material and the wire. Each connector element may also be formed of a metallic ribbon which may be bent to form a loop, the ends of which may be twisted about each other or may remain in parallel relation to each other and be twisted separately. The ribbon-formed connectors may be inserted in the rod in the same manner as the wire.

Referring to the drawings, in Fig. 1 is shown an insulator 3 constructed of sheet material, impregnated with a binder, such as a phenolic condensation product and having metallic connector elements 4 molded in its ends. Each connector element 4 may be formed of a wire which may be bent and may have its ends twisted about each other in such manner that a loop 5 and a distorted shank are provide. The connector elements 4, thus formed, may be positioned in the rod 3 by winding the sheet material forming the rod 3 about them so that, when the rod 3 is positioned in a mold and subjected to heat and pressure, the compacted material, together with the hardened binder, will secure the connector elements 4 firmly in place.

An insulator 6, such as is shown in Fig. 3, may be constructed in a similar manner, the principal difference being in the connector elements 7 which, in this instance, are bent to form a loop 8 having its ends 9 extending in parallel relation to each other, and, if desired, separately twisted to insure greater binding effect when positioned in the impregnated sheet material forming the rod 6 or its ends 9 may be twisted about each other, to form a shank, as desired.

An insulator constructed in accordance with my invention combines high insulating qualities with great mechanical strength. The laminated structure of the insulators insures great resistance against stresses in any direction. The insulating qualities of my improved insulator have been tested with voltages sufficient to cause a spark to bridge the gap between conductor elements which

they held in spaced relation and in no instance did the high voltages in any way damage the rod. As these insulators are in no way affected by comparatively wide temperature changes or moisture, they may be employed under any atmospherical conditions that may be experienced.

Although I have shown particular forms of insulators which may be constructed in accordance with my invention, it is obvious that other minor changes may be made in constructing an insulator without departing from the spirit of my invention and I desire, therefore, that no limitations shall be imposed except such as are indicated in the appended claims.

I claim as my invention:

1. A strain insulator comprising a rod formed of superimposed layers of sheet material impregnated with a hardened binder and metallic members bent to form loops and having their ends distorted and molded into the ends of the rod.

2. A strain insulator comprising a rod formed of superimposed layers of sheet material impregnated with a hardened phenolic condensation product and metallic members bent to form loops and having their ends distorted and molded into the ends of the rod.

3. A strain insulator comprising a rod formed of superimposed layers of sheet material impregnated with a hardened binder and wires bent to form loops and severally having their ends twisted about each other and molded into the ends of the rod.

4. A strain insulator comprising a rod formed of superimposed layers of sheet material impregnated with a hardened phenolic condensation product and wires bent to form loops and severally having their ends twisted about each other and molded into the ends of the rod.

5. A strain insulator comprising a rod formed of superimposed layers of sheet material impregnated with a hardened binder and wires bent to form loops and having their ends twisted and molded into the ends of the rod.

6. An insulator comprising a hard molded insulating body including elements therein having portions extending substantially parallel to its load axis and portions, constituting longitudinal continuations of said first portions, that are laterally waved or bent, and a terminal member embodying an intermediate loop portion and ends having laterally-extending portions disposed between said waves or bends for interlocking the insulating body and terminal member against the load forces.

7. A strain insulator comprising an elongated hard molded insulating body including elements therein having intermediate portions extending substantially parallel to its longitudinal load axis and portions, constituting longitudinal continuations of said first portions, that are laterally waved or bent adjacent to the ends of said body, and terminal members each embodying an intermediate loop portion and ends having laterally-extending portions disposed between said waves at one end of the insulating body for interlocking the latter and the terminal members against the load forces.

In testimony whereof, I have hereunto subscribed my name this 7th day of August 1918.

WILLARD H. KEMPTON.